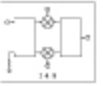
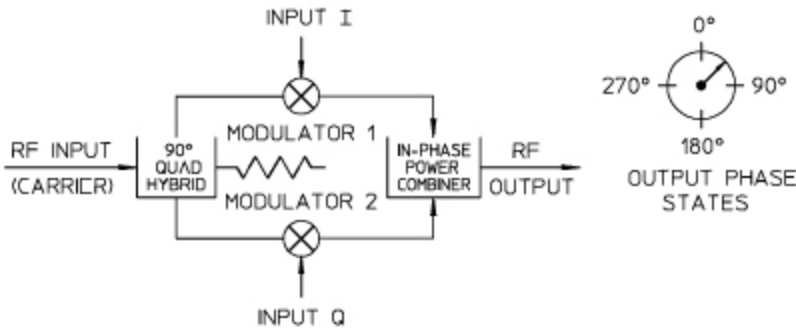


VMM-2D Series

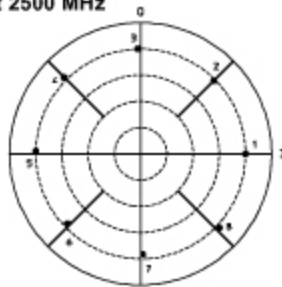
VECTOR I&Q MODULATOR

2.5 to 6.5 GHz / High Rate Analog QPSK for MSK Systems / Excellent Phase & Ampli. Bal. / SMA



Typical Magnitude/Phase Plot at 2500 MHz

| State | Data Input (mA) | | Ins. Loss dB | Phase | |
|-------|-----------------|-------|-----------------|--------|------|
| | I | Q | | Abs. | Bal. |
| 1 | 4.5 | 0 | -9.2 | 0 | 0 |
| 2 | 3.18 | 3.18 | -9.3 | 45.2 | 0.2 |
| 3 | 0 | 4.5 | -9.3 | 91.3 | 1.3 |
| 4 | -3.18 | 3.18 | -8.8 | 134.5 | 0.5 |
| 5 | -4.5 | 0 | -9.3 | 177.8 | 2.2 |
| 6 | -3.18 | -3.18 | -9.6 | -135.8 | 0.8 |
| 7 | 0 | -4.5 | -9.6 | -88.4 | 1.6 |
| 8 | 3.18 | -3.18 | -9.0 | -43.7 | 1.3 |

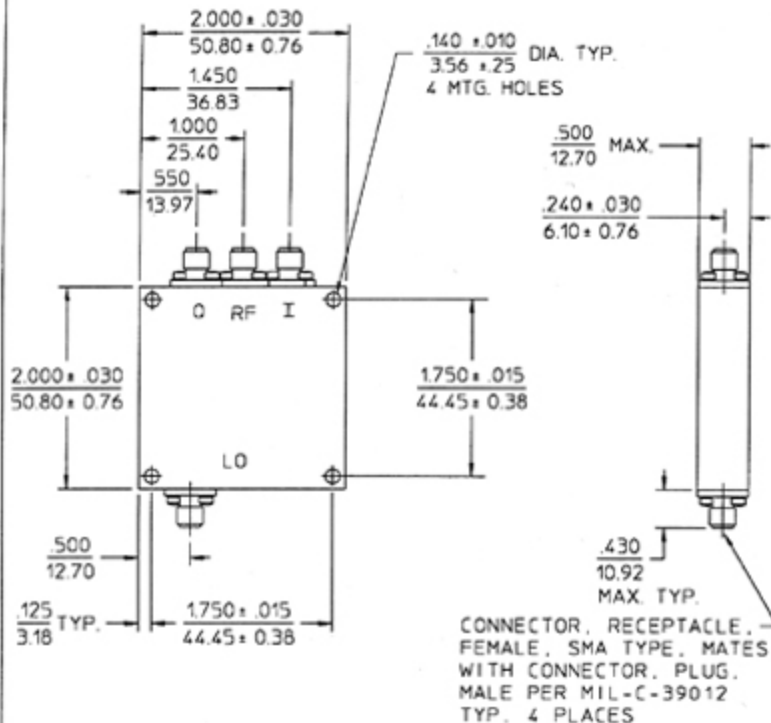


PRINCIPAL SPECIFICATIONS

| Model Number | RF/LO Center Freq., f_0 , GHz | RF/LO Bandwidth, MHz |
|--------------|------------------------------------|-------------------------|
| VMM-2D-****B | 2.5 to 6.5 | 10% of f_0 |

For complete Model Number replace **** with desired center frequency, f_0 in MHz

D-Package Outline



NOTES: 1. Tolerance on 3 place decimals $\pm 0.020(.51)$ except as noted.
2. Dimensions in inches over mm.

24May96

GENERAL SPECIFICATIONS

| | |
|---------------------------------------|--------------------------------|
| RF Input: | +10 dBm nom. |
| Modulation Inputs: | 0 dBm max. |
| VSWR: | 2.0:1 max. |
| Impedance: | 50 Ω nom. |
| Insertion Loss | |
| (Below modulation Input): | 12 dB max. |
| Modulation Accuracy | |
| (measured @ 4 quadrants, 0 dBm input) | |
| Amplitude Balance: | 1 dB |
| Phase Balance: | $\pm 5^\circ$ |
| Weight, nominal: | 3 oz (84 g) |
| Operating Temp: | -55 $^\circ$ to +85 $^\circ$ C |

General Notes:

1. A vector modulator is used to phase modulate an RF carrier with complex analog signals.
2. Merrimac Vector Modulators consist of a quadrature hybrid and an in-phase power divider.
3. Units in the VMM-2D series are capable of modulating the carrier at up to 10% of the RF bandwidth.
4. These units comply with relevant sections of MIL-M-28837 and may be supplied screened for compliance with additional specifications for military and space applications requiring the highest reliability.